ENTRY MONTH: 199404
ENTRY DATE: Entered STN: 12 Apr 1994
Last Updated on STN: 12 Apr 1994
Entered Medline: 7 Apr 1994

AB The principles of magnetic separation aided by antibodies or other specific binding molecules have been used for isolation of specific viable whole organisms, antigens, or nucleic acids. Whereas growth on selective media may be helpful in isolation of a certain bacterial species, immunomagnetic separation (IMS) technology can isolate strains possessing specific and characteristic surface antigens. Further separation, cultivation, and identification of the isolate can be performed by traditional biochemical, immunologic, or molecular methods. PCR can be used for amplification and identification of genes of diagnostic importance for a target organism. The combination of IMS and PCR reduces the assay time to several hours while increasing both specificity and sensitivity. Use of streptavidin-coated magnetic beads for separation of amplified DNA fragments, containing both biotin and a signal molecule, has allowed for the conversion of the traditional PCR into an easy-to-read microtiter plate format. The bead-bound PCR amplicons can also easily be sequenced in an automated DNA sequencer. The latter technique makes it possible to obtain sequence data of 300 to 600 bases from 20 to 30 strains, starting with clinical samples, within 12 to 24 h. Sequence data can be used for both diagnostic and epidemiologic purposes. IMS has been demonstrated to be a useful method in diagnostic microbiology. Most recent publications describe IMS as a method for enhancing the specificity and sensitivity of other detection systems, such as PCR, and providing considerable savings in time compared with traditional diagnostic systems. The relevance to clinical diagnosis has, however, not yet been fully established for all of these new test principles. In the case of PCR, for example, the presence of specific DNA in a food sample does not demonstrate the presence of a live organism capable of inducing a disease. However, all tests offering increased sensitivity and specificity of detection, combined with reduced time of analysis, have to be seriously evaluated.

=> d hist

(FILE 'HOME' ENTERED AT 16:53:20 ON 10 MAR 2008)

FILE 'CAPLUS, MEDLINE, BIOSIS' ENTERED AT 16:54:06 ON 10 MAR 2008
L1 635 S (MAGNET? AND BEAD? AND (CELL? OR VIRUS?) AND (AMPLIF?))
L2 196 S L1 AND ANTIBOD?
L3 98 S L1 AND AUTOMAT?
L4 24 S L2 AND AUTOMAT?
L5 6 S L4 AND CLINIC?
L6 1 S L4 AND (PARAMAG? OR FERROMAG? OR FERRIMAG?)
L7 14 DUP REM L4 (10 DUPLICATES REMOVED)
L8 5 DUP REM L5 (1 DUPLICATE REMOVED)

=> d hist full

(FILE 'HOME' ENTERED AT 16:53:20 ON 10 MAR 2008)

FILE 'CAPLUS, MEDLINE, BIOSIS' ENTERED AT 16:54:06 ON 10 MAR 2008
L1 635 SEA ABB=ON PLU=ON (MAGNET? AND BEAD? AND (CELL? OR VIRUS?) AND (AMPLIF?))
L2 196 SEA ABB=ON PLU=ON L1 AND ANTIBOD?
L3 98 SEA ABB=ON PLU=ON L1 AND AUTOMAT?
L4 24 SEA ABB=ON PLU=ON L2 AND AUTOMAT?
L5 6 SEA ABB=ON PLU=ON L4 AND CLINIC?

```
L6             1 SEA ABB=ON  PLU=ON  L4 AND (PARAMAG? OR FERROMAG? OR FERRIMAG?)

L7            14 DUP REM L4 (10 DUPLICATES REMOVED)
L8             5 DUP REM L5 (1 DUPLICATE REMOVED)
                 D L6 IBIB ABS
                 D L8 IBIB ABS 1-5
                 D L7 TI 1-14
                 D L7 IBIB ABS 2,3,5,6
                 D L7 IBIB ABS 12


     FILE HOME

     FILE CAPLUS

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